UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,069	03/26/2004	Bruce Douglas Smith	UTSJ:045US	8075

32425 7590 01/03/2007	EXAMINER
FULBRIGHT & JAWORSKI L.L.P. 600 CONGRESS AVE. SUITE 2400 AUSTIN, TX 78701	BOOSALIS, FANI POLYZOS

ART UNIT	PAPER NUMBER
2884	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
	10/811,069	SMITH, BRUCE DOUGLAS
Office Action Summary	Examiner	Art Unit	
	Faye Boosalis	2884	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>11 October 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-39</u> is/are pending in the application.

    4a) Of the above claim(s) <u>18,19,30 and 31</u> is/are withdrawn from consideration.

5)☒ Claim(s) <u>1-14 and 27-29, 32-39</u> is/are allowed.

6)☒ Claim(s) <u>15-26</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Comment on Submissions

1. This communication is responsive to submissions 11 October 2006.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 15-17 and 20-26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to a judicial exception; as such, pursuant to the Interim Guidelines on Patent Eligible Subject Matter (MPEP 2106), the claims must have either physical transformation and/or a useful, concrete and tangible result. The claims fail to include transformation from one physical state to another. Although, the claims appear useful and concrete, there does not appear to be a tangible result claimed. Merely calculating a set of conical integrals to satisfy a completeness condition would not appear to be sufficient to constitute a tangible result, since the outcome of the calculating step has not been used in a disclosed practical application nor made available in such a manner that its usefulness in a disclosed practical application can be realized. As such, the subject matter of the claims is not patent eligible.

Allowable Subject Matter

4.   Claims 18-19 and 30-31 have been cancelled.

5.   Claims 1-14, 27-29, 32-39 are allowed.

6.   The following is an examiner's statement of reasons for allowance:

Regarding independent claims 1 and 33, the prior art does not disclose or fairly suggest a system or method comprising: using a finite set of integrals, satisfying a completeness condition for image reconstruction or calculating a set of conical integrals to satisfy a completeness condition where:

(i) the finite set of integrals comprises surface integrals and if a plane that intersect a sphere with a radius bigger than a distribution where all the surface integrals emanates from the apex whose axis of symmetry is normal to the plane, then obtaining a distribution of radioactivity from the surface integrals; or

ii) if the finite set of integrals comprises line integrals and if a plane that intersects a distribution where all the line-integrals emanates from the apex whose axis of symmetry is normal to the plane, then obtaining a distribution of radioactivity from the integrated line-integrals.

The examiner notes that while it is known in the art a method of image reconstruction from a gamma camera based on Compton scattering where: from a complete set of restricted cone-surface projections ($\lambda(x,y,t)$ for $(x,y) \in R^2$ and $t \in [0,\infty]$, the X-ray source distribution $\mu(x,y,t)$ can be reconstructed (see for example *Cree and Bones, "Towards Direct Reconstruction from a Gamma Camera based on Compton Scattering',"* page 401, col. 1). When the cone-surface projection, $\lambda(x,y,t)$, whose apex lies on a infinitely large plane, $t \in [0,\infty]$ and axis of symmetry (x,y) is perpendicular to the plane, the object can be reconstructed. The subset of all the cone-surfaces projections are satisfied when vector β is equal to vector z (see for example *Cree and Bones, "Towards Direct Reconstruction from a Gamma Camera based on Compton*

Scattering'," page 400, col. 2 and page 401, col. 2), vector β being the unit vector

between the x_1 and x_2 (see for example *Cree and Bones, "Towards Direct*

Reconstruction from a Gamma Camera based on Compton Scattering'," page 399, Fig.

1(b)), the prior art, Theorem 1, does not suggest the completeness condition as

described in steps (i) and (ii) supra.

Regarding independent claim 27, the prior art does not disclose or fairly suggest

a computer readable medium comprising instructions for calculating a set of conical

integrals to satisfy a completeness condition where:

(i) the finite set of integrals comprises surface integrals and if a plane that

intersect a sphere with a radius bigger than a distribution where all the surface integrals

emanates from the apex whose axis of symmetry is normal to the plane, then obtaining

a distribution of radioactivity from the surface integrals; or

ii) if the finite set of integrals comprises line integrals and if a plane that intersects

a distribution where all the line-integrals emanates from the apex whose axis of

symmetry is normal to the plane, then obtaining a distribution of radioactivity from the

integrated line-integrals.

The examiner notes that while it is known in the art results of computer

simulations presented to demonstrate ability of algorithms, to achieve useful

reconstruction, comprising from a complete set of restricted cone-surface projections

($\lambda(x,y,t)$ for $(x,y) \in R^2$ and $t \in [0,\infty]$, the X-ray source distribution $\mu(x,y,t)$ can be

reconstructed (see for example *Cree and Bones, "Towards Direct Reconstruction from a*

Gamma Camera based on Compton Scattering'," page 401, col. 1). When the cone-

surface projection, $\lambda(x,y,t)$, whose apex lies on a infinitely large plane, $t \in [0,\infty]$ and axis

of symmetry (x,y) is perpendicular to the plane, the object can be reconstructed. The

subset of all the cone-surfaces projections are satisfied when vector β is equal to vector

z (see for example *Cree and Bones, "Towards Direct Reconstruction from a Gamma*

Camera based on Compton Scattering'," page 400, col. 2 and page 401, col. 2), vector

β being the unit vector between the x_1 and x_2 (see for example *Cree and Bones,*

"Towards Direct Reconstruction from a Gamma Camera based on Compton

Scattering'," page 399, Fig. 1(b)), the prior art, Theorem 1, does not suggest the

completeness condition, as described in steps (i) and (ii) supra, to be calculated by a

computer readable medium.

The remaining claims 2-14, 28-29, 32 and 34-39 are allowable based on their

dependency.

Conclusion

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Faye Boosalis whose telephone number is 571-272-

2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to

4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

8.   Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FB

OTILIA GABOR
PRIMARY EXAMINER